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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,847	04/18/2005	Matthias Mrzyglod	2002P01123WOUS	4073

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EXAMINER

STIMPERT, PHIL PEARL

ART UNIT	PAPER NUMBER
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3746

MAIL DATE	DELIVERY MODE
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09/18/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/531,847

Applicant(s)

MRZYGLÓD, MATTHIAS

Examiner

Philip Stimpert

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2008.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11 and 13-25 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 11 and 13-25 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 10 December 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 31 July 2008 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 11 and 13-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Regarding claim 11, lines 13-14 of the claim recites "media to be compressed," while line 37 further recites "a medium," which appears to be a second positive recitation of the earlier media to be compressed. Clarification of the antecedent basis of the recitation on line 37 is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 21, 22, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terauchi (EP 0509660) in view of Hur et al. (US 6,398,523).
7. Regarding claim 21, Terauchi teaches a linear compressor unit comprising
 - a. an electromagnetic alternating field (generated by magnetic field coil 10) surrounding at least a portion of a cylinder (15),
 - b. a magnet (11a, 11b, or 11c) located in the electromagnetic alternating field in the cylinder (15), the magnet displaceable back and forth in the electromagnetic alternating field,
 - c. a piston (12-14) located in the electromagnetic alternating field in the cylinder (15) drivingly connected to the magnet,
 - d. a buffer volume (27),
 - e. a module casing (1) enclosing the cylinder (15) and the buffer volume (27), the cylinder (15) being mounted in the module casing (1) so that the cylinder (15) can oscillate in the module casing (col. 2, ln. 6-8, absorption implies that some amount of reciprocation does occur),
 - f. an inlet passage (2) provided in the module casing for the medium to be compressed, and
 - g. an inlet opening (28) lying opposite the inlet passage without making contact therewith, the cylinder including a chamber (22) for receiving the piston (12-14).

8. Terauchi teaches neither a passage (28) to the buffer volume (27) formed between the inlet opening (181) and the inlet passage (2), nor a sound restrictor element located in the buffer volume passage. Hur et al. teach a sound restrictor element (400) for use in the intake flow path of a linear compressor, in particular between relatively reciprocating elements. Hur et al. state that their suction induction member 400 is useful "for... guiding the suction of the refrigerant gas and secondly decreasing noise during the suction of the refrigerant gas," (col. 9, ln. 61-63). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine a suction induction member as taught by Hur et al. with the compressor of Terauchi in order to decrease the noise of suction during operation of the compressor. This suction induction member, formed in attachment or as a part of the inlet opening (28) and generally proceeding between inlet opening (28) and an inlet passage (2, the position of which would be changed to accommodate the combination) would comprise a passage to the buffer volume, and would constitute a sound restrictor element located in that buffer volume passage. Hur et al. teach the limitation that the sound restrictor has a plurality of intermeshed walls (Hur et al., 402 and 410 as shown particularly in Fig. 13), a first group of walls (410) attached to a casing (450) and the second group of walls (indicated at 400 and partially surrounding 410 at one end of one of the walls of the group) attached to the piston (40), wherein the piston (40) reciprocates relative to the casing (450). It would therefore have been obvious in the combination to provide the intermeshing walls of the suction induction member in such a fashion that the first set of walls were attached to the module casing (1) of Terauchi and

the second set of walls were attached to the cylinder, since the cylinder reciprocates relative to the module casing (1). Also as taught by Hur et al., the two groups of walls relatively reciprocate while remaining intermeshed, and the inlet passage can include a first sound-dampening chamber (410). Terauchi also teaches a chamber (25) through which the medium to be compressed flows, arranged between the inlet opening (28) and the piston chamber (22). Terauchi does not explicitly disclose that this chamber has sound-dampening functionality, but given the teachings of sound-dampening chambers present in the suction induction member (400) of Hur et al. and the knowledge of one of ordinary skill in the art, it would have been obvious to form the chamber (25) such that it would constitute a second sound-dampening chamber.

9. Regarding claim 22, Hur et al. teach that the first sound-dampening chamber (410) is formed in a flat-cylindrical shape with a cylindrical axis opening and the inlet passage of the module casing is substantially aligned therewith according to the combination.

10. Regarding claim 24, Terauchi teaches that the magnet (11a, 11b, or 11c) is formed as an axial extension of a portion (12) of the piston.

11. Regarding claim 25, Terauchi teaches that the magnet (11a, 11b, or 11c) is formed as a ring shaped body at least partially surrounding the piston (12-14) and connected thereto at an end (12) of the piston.

12. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Terauchi in view of Hur et al. as applied to claim 11 above, and further in view of Kawahara et al. (US 6,273,688) and Bohlmann et al. (US 6,273,688).

13. Regarding claim 23, the previously combined references do not teach the limitation of the cylinder being mounted for oscillation in the module casing by a cylinder outlet pipe, nor that the cylinder outlet pipe is helically formed around the cylinder. Bohlmann et al. teach a muffler assembly which in particular includes a helical exhaust pipe, stating that "low inherent frequencies are obtained... by increasing the pipe length" and teach, in Fig. 5, a structure for accomplishing that increase in pipe length, namely to form the exhaust pipe helically. Kawahara et al. teach the use of a helically formed cylinder outlet pipe in a linear compressor. In particular, Kawahara et al. teach that "by winding the discharge tube into a spring shape and by increasing the spring constant of the supporting mechanism greater than that of the discharge tube, it is possible to enhance the resistance to vibration, and to shorten the overall length of the compressor, thereby reducing the compressor in size," (col. 6, ln. 53-58).

14. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the compressor of the previously combined references with a cylinder outlet pipe formed helically around the cylinder and mounting the cylinder for oscillation in the module casing, in order to simultaneously increase the resistance to vibration and muffle low inherent frequencies, while still maintaining a short overall length of the compressor.

Allowable Subject Matter

15. Claims 11 and 13-20 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

16. The following is a statement of reasons for the indication of allowable subject matter: the limitations of the sound restrictor element, particularly the first and second runs and the specific walls which delimit them are not shown in the prior art of record in combination with the remaining limitations of claim 11.

Response to Arguments

17. Applicant's arguments, see page 8, filed 31 July 2008, with respect to the claim objections, specification objections, and the obviousness rejections of claims 11 and 13-20 have been fully considered and are persuasive. These objections and rejections are hereby withdrawn.

18. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

19. Finally, as applicant's arguments with respect to claims 21-25 appear to depend on limitations in claim 11 which are not present in those claims, the rejections of those claims under 35 U.S.C. 103(a) are upheld.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip Stimpert whose telephone number is (571)270-1890. The examiner can normally be reached on Mon-Fri 7:30AM-4:00PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art
Unit 3746

/P. S./
Examiner, Art Unit 3746
15 September 2008